Access DB# 91063

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: WILLIAM G. WRIGHT JR. Examiner #: 62100 Date: 4/8/03
Art Unit: 1754 Phone Number 30 703-305-7718 Serial Number: 09/960,498
Mail Box and Bldg/Room Location: CP3-9A15 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: CERAMIC CATALYST BODY.

Inventors (please provide full names): MASAKAZU TANAKA, TOSHIKARA KONDO, Tomohiko NAKAMISHI, KAZUHIKO KOIKE

Earliest Priority Filing Date: 9/29/00

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

09/960,498

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STAFF USE ONLY

Searcher: EA
Searcher Phone #:
Searcher Location:
Date Searcher Picked Up:
Date Completed: 4-9-03
Searcher Prep & Review Time: 5
Clerical Prep Time:
Online Time: 60

Type of Search

NA Sequence (#)
AA Sequence (#)
Structure (#)
Bibliographic 1
Litigation
Fulltext
Patent Family
Other

Vendors and cost where applicable

STN P 205.41
Dialog
Questel/Orbit
Dr.Link
Lexis/Nexis
Sequence Systems
WWW/Internet
Other (specify)

PTO-1590 (8-01)

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=> file reg
FILE 'REGISTRY' ENTERED AT 12:07:53 ON 09 APR 2003
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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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=> display history full l1-


     FILE 'REGISTRY'
                E CORDIERITE/CN
L1            4 SEA CORDIERITE/CN

     FILE 'LCA'
L2         7645 SEA (FILM? OR THINFILM? OR LAYER? OR OVERLAY? OR
                OVERLAID? OR LAMIN? OR LAMEL? OR SHEET? OR LEAF? OR
                FOIL? OR COAT? OR TOPCOAT? OR OVERCOAT? OR VENEER? OR
                SHEATH? OR COVER? OR ENVELOP? OR ENCAS? OR ENWRAP? OR
                OVERSPREAD?)/BI,AB
L3         7187 SEA FILM? OR THINFILM? OR LAYER? OR OVERLAY? OR OVERLAID?
                 OR LAMIN? OR LAMEL? OR CLAD? OR COAT? OR TOPCOAT? OR
                OVERCOAT? OR VENEER? OR SHEATH? OR COVER? OR ENVELOP? OR
                ENCAS? OR ENWRAP? OR OVERSPREAD? OR CASING# OR WRAPPING#
                OR ENCAPSUL? OR CAPSUL?

     FILE 'HCA, WPIDS, JAPIO'
L4         2869 SEA (TRAP OR TRAPS OR TRAPPED OR TRAPPING#)(2A)L3
L5         2080 SEA (TRAP OR TRAPS OR TRAPPED OR TRAPPING#)(2A)L3
L6          548 SEA (TRAP OR TRAPS OR TRAPPED OR TRAPPING#)(2A)L3
     TOTAL FOR ALL FILES
L7         5497 SEA (TRAP OR TRAPS OR TRAPPED OR TRAPPING#)(2A) L3
L8         2685 SEA CERAMIC?(2A)(CAT# OR CATALY?)
L9         1374 SEA CERAMIC?(2A)(CAT# OR CATALY?)
L10         264 SEA CERAMIC?(2A)(CAT# OR CATALY?)
     TOTAL FOR ALL FILES
L11        4323 SEA CERAMIC?(2A)(CAT# OR CATALY?)
L12        8927 SEA L1 OR CORDIERITE#
L13        2312 SEA L1 OR CORDIERITE#
L14        1134 SEA L1 OR CORDIERITE#
     TOTAL FOR ALL FILES
L15       12373 SEA L1 OR CORDIERITE#
L16        1134 SEA (ABSORB? OR ABSORP? OR ADSORB? OR ADSORP? OR SORB?
                OR CHEMICOSORB? OR CHEMICOSORP? OR CHEMISORB? OR
                CHEMISORP?)(2A)POISON?
L17         207 SEA (ABSORB? OR ABSORP? OR ADSORB? OR ADSORP? OR SORB?
                OR CHEMICOSORB? OR CHEMICOSORP? OR CHEMISORB? OR
                CHEMISORP?)(2A)POISON?
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                OR CHEMICOSORB? OR CHEMICOSORP? OR CHEMISORB? OR
                CHEMISORP?)(2A)POISON?
     TOTAL FOR ALL FILES
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                 OR CHEMICOSORB? OR CHEMICOSORP? OR CHEMISORB? OR
                 CHEMISORP?)(2A) POISON?
L20            5 SEA L8 AND L4
L21            2 SEA L9 AND L5
L22            1 SEA L10 AND L6
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L23            8 SEA L11 AND L7
L24            0 SEA L8 AND L16
L25            0 SEA L9 AND L17
L26            0 SEA L10 AND L18
     TOTAL FOR ALL FILES
L27            0 SEA L11 AND L19
L28           25 SEA L8 AND POISON?
L29           22 SEA L9 AND POISON?
L30            4 SEA L10 AND POISON?
     TOTAL FOR ALL FILES
L31           51 SEA L11 AND POISON?
L32            4 SEA L28 AND L12
L33            3 SEA L29 AND L13
L34            1 SEA L30 AND L14
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L35            8 SEA L31 AND L15
L36            7 SEA L4 AND L12
L37            5 SEA L5 AND L13
L38            2 SEA L6 AND L14
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L39           14 SEA L7 AND L15
L40            1 SEA L16 AND L12
L41            1 SEA L17 AND L13
L42            0 SEA L18 AND L14
     TOTAL FOR ALL FILES
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L44            0 SEA L4 AND L16
L45            0 SEA L5 AND L17
L46            0 SEA L6 AND L18
     TOTAL FOR ALL FILES
L47            0 SEA L7 AND L19

     FILE 'JAPIO'
L48            2 SEA L22 OR L34 OR L38

     FILE 'WPIDS'
L49           10 SEA L21 OR L33 OR L37 OR L41

     FILE 'HCA'
L50           14 SEA L20 OR L32 OR L36 OR L40


=> file japio
FILE 'JAPIO' ENTERED AT 12:08:13 ON 09 APR 2003
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FILE LAST UPDATED: 4 APR 2003 <20030404/UP>
FILE COVERS APR 1973 TO NOVEMBER 29, 2002

=> d l48 1-2 ibib abs ind

L48 ANSWER 1 OF 2 JAPIO COPYRIGHT 2003 JPO
ACCESSION NUMBER: 2002-172329 JAPIO
TITLE: **CERAMIC CATALYST** BODY AND CATALYST REGENERATION METHOD
INVENTOR: TANAKA MASAICHI; KONDO TOSHIHARU; NAKANISHI TOMOHIKO; KOIKE KAZUHIKO; KONDO TAKASHI; HASE TOMOMI; ITO MIHO
PATENT ASSIGNEE(S): DENSO CORP
NIPPON SOKEN INC
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2002172329	A	20020618	Heisei	B01J033-00

APPLICATION INFORMATION
STN FORMAT: JP 2001-225454 20010726
ORIGINAL: JP2001225454 Heisei
PRIORITY APPLN. INFO.: JP 2000-298019 20000929
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2002

AN 2002-172329 JAPIO
AB PROBLEM TO BE SOLVED: To enhance the **poisoning** resistance of a catalyst body using a ceramic carrier capable of directly carrying a catalyst by preventing the **poisoning** of the catalyst caused by a **poisoning** component in exhaust gas or regenerating the **poisoned** catalyst.
SOLUTION: The **ceramic catalyst** body is obtained by making the ceramic carrier formed so as to directly carry the catalyst by substituting a part of the constituent elements of **cordierite** directly carry a main catalyst component and a catalyst component and a **trap layer** for collecting sulfur being a catalyst **poisoning** component in exhaust gas is provided to the catalyst body on the upstream side thereof. Since sulfur contained in the exhaust gas can be collected by the **trap layer**, the catalyst **poisoning** component is excluded from gas flowing in the catalyst body to prevent the **poisoning** of the catalyst.
COPYRIGHT: (C)2002,JPO
IC ICM B01J033-00
ICS B01D053-50; B01D053-81; B01D053-94; B01J035-04; B01J038-08; B01J038-60; F01N003-08; F01N003-20; F01N003-24; F01N003-28

L48 ANSWER 2 OF 2 JAPIO COPYRIGHT 2003 JPO
ACCESSION NUMBER: 1994-060736 JAPIO

TITLE: RUBBER PLASTIC INSULATED DC POWER CABLE
INVENTOR: NOMURA HIROYUKI
PATENT ASSIGNEE(S): FURUKAWA ELECTRIC CO LTD:THE
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 06060736	A	19940304	Heisei	H01B009-02

APPLICATION INFORMATION
STN FORMAT: JP 1992-236498 19920812
ORIGINAL: JP04236498 Heisei
PRIORITY APPLN. INFO.: JP 1992-236498 19920812
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1994

AN 1994-060736 JAPIO
AB PURPOSE: To obtain a rubber plastic insulated DC power cable in which a remarkable deterioration of characteristics such as polarity inversion insulation breakdown, DC inverted polarity impulse break down, etc., is restrained and ρdistribution in an insulating layer is made uniform.
CONSTITUTION: A rubber plastic insulated DC power cable is manufactured by sequentially forming an inner semiconductive layer, an insulating layer and an outer semiconductive layer on a conductor. The insulating layer is formed of crosslinking material of polyolefine compound containing crosslinking agent of 0.1-10 weight percent and **cordierite** (Mg<SB>2</SB>Al<SB>2</SB>Si<SB>5</SB>O<SB>15</SB>) impalpable powder of 0.1-20 weight percent against polyethylene or/and ethylene copolymer of 100 weight percent. Since the **cordierite** impalpable powder compounded into the insulating **layer traps** the decomposition residue of the linking agent and electric charge and makes ρ distribution in the insulating layer uniform the insulating breakdown characteristic is promoted at the time of polarity inversion or DC inverted polarity impulse superposition.

IC ICM H01B009-02
ICS H01B003-44
ICA C08L023-00

=> file wpids
FILE 'WPIDS' ENTERED AT 12:09:10 ON 09 APR 2003

FILE LAST UPDATED: 7 APR 2003 <20030407/UP>
MOST RECENT DERWENT UPDATE: 200323 <200323/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

=> d l49 1-10 max

L49 ANSWER 1 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 2002-425324 [45] WPIDS
DNC C2002-120386
TI **Ceramic catalyst** body used in catalytic converter for purifying exhaust gas of automobile engine, includes catalyst particles having anti-evaporation metal layer on their outer surface.
DC H06 J04 Q51
IN HASE, T; ITO, M; KOIKE, K; KONDO, T; NAKANISHI, T; TANAKA, M
PA (NPDE) DENSO CORP; (HASE-I) HASE T; (ITOM-I) ITO M; (KOIK-I) KOIKE K; (KOND-I) KONDO T; (NAKA-I) NAKANISHI T; (TANA-I) TANAKA M
CYC 5
PI US 2002039966 A1 20020404 (200245)* 18p B01J038-04
DE 10147347 A1 20020529 (200245) B01J035-02
CN 1346696 A 20020501 (200252) B01J021-16
JP 2002172324 A 20020618 (200255) 7p B01J023-46
JP 2002172329 A 20020618 (200255) 11p B01J033-00
ZA 2001007894 A 20020731 (200271) 52p B01J000-00
ADT US 2002039966 A1 US 2001-960498 20010924; DE 10147347 A1 DE 2001-10147347 20010926; CN 1346696 A CN 2001-136068 20010929; JP 2002172324 A JP 2001-225615 20010726; JP 2002172329 A JP 2001-225454 20010726; ZA 2001007894 A ZA 2001-7894 20010926
PRAI JP 2001-225615 20010726; JP 2000-298005 20000929; JP 2000-298019 20000929; JP 2001-225454 20010726
IC ICM B01J000-00; B01J021-16; B01J023-46; B01J033-00; B01J035-02; B01J038-04
ICS B01D053-50; B01D053-81; B01D053-94; B01J023-40; B01J023-54; B01J023-89; B01J023-96; B01J032-00; B01J035-04; B01J035-10; B01J037-02; B01J038-02; B01J038-08; B01J038-48; B01J038-60; F01N003-08; F01N003-20; F01N003-24; F01N003-28
AB US2002039966 A UPAB: 20020717
NOVELTY - A **ceramic catalyst** body comprises a ceramic carrier capable of supporting a catalyst component directly on the surface of a substrate **ceramic** and a **catalyst** supported on the **ceramic** carrier. The **catalyst** particles are provided with a layer containing an anti-evaporation metal formed at least in part of the outer surface of the catalyst metal particles.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) the production of the above **ceramic catalyst** body, comprising immersing a ceramic carrier in a solution of a catalyst metal, sintering the ceramic carrier, immersing the carrier in a solution of an anti-evaporation metal, and sintering the ceramic carrier; and

(b) regenerating a **ceramic catalyst** body comprising heating the carrier to decompose catalyst **poisoning** component and regenerate the catalyst when the catalyst performance has decreased due to catalyst **poisoning**.

USE - Used in a catalytic converter for purifying an exhaust

gas of an automobile engine.
ADVANTAGE - The catalyst body suppresses deterioration, has high durability, and has an improved **poisoning** resistance.
DESCRIPTION OF DRAWING(S) - The figure shows the shape of catalyst particles supported in the **ceramic catalyst** body.
Dwg.1/7

TECH US 2002039966 A1UPTX: 20020717
TECHNOLOGY FOCUS - CERAMICS AND GLASS - Preferred Component: The layer containing the anti-evaporation metal covers at least 10%, preferably at least 50% of the outer surface of the catalyst metal particles. The substituting element is an element(s) having a d or an f orbit in its orbit. The ceramic carrier has pores capable of directly supporting the catalyst on the surface of the substrate ceramic so that the catalyst metal can be supported directly in the pores. The pores comprise defects in the ceramic crystal lattice, microscopic cracks in the ceramic surface and defects in the elements, which constitute the ceramic. The pores have diameter or width 1000 times the diameter of the catalyst ion to be supported, or smaller, and the density of pores is at least 1 x 10 power 11/L. The defects comprise an oxygen defect or a lattice defect, and the density of **cordierite** crystal containing at least one defect in a unit crystal lattice of **cordierite** is set to at least 4 x 10-6%. The microscopic cracks are at most 100 nm width. Preferred Method: A catalyst **poisoning** component is placed into contact with a solution or gas containing acid or alkali, to decompose the component. The gas atmosphere is changed to dissociate the catalyst **poisoning** component. The catalyst **poisoning** component is dissociated by exposing the catalyst to reduced pressure atmosphere, low-oxygen atmosphere, or reducing atmosphere, as the changed gas atmosphere. The catalyst metal is supported on the substituting element by chemical bonding.
TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Component: The anti-evaporation metal is supported on the outer surface of the catalyst metal particles in the form of a metal, an oxide of the metal, or an alloy. The catalyst metal is a noble metal, and the anti-evaporation metal is a high-melting point metal of which oxide has a melting point of at least 1100 degrees C. The anti-evaporation metal has catalytic activity. The anti-evaporation metal is titanium, vanadium, chromium, iron, cobalt, nickel, copper, rhodium, tantalum, tungsten, or iridium.

FS CPI GMPI
FA AB; GI
MC CPI: H06-C03; J04-E03; J04-E04; N06-E01; N06-E02

L49 ANSWER 2 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 2002-415981 [44] WPIDS
DNN N2002-327302 DNC C2002-117342
TI Nitrogen oxide trap composition for exhaust system of lean-burn engines and vehicles comprises two storage components containing alkali metal and platinum oxidation catalyst respectively.
DC E36 H06 J01 J04 T01 X22

IN POULSTON, S; RAJARAM, R R
PA (JOHO) JOHNSON MATTHEY PLC
CYC 94
PI WO 2002022241 A1 20020321 (200244)* EN 19p B01D053-94
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2001087882 A 20020326 (200251) B01D053-94
ADT WO 2002022241 A1 WO 2001-GB4160 20010917; AU 2001087882 A AU 2001-87882 20010917
FDT AU 2001087882 A Based on WO 200222241
PRAI GB 2000-22786 20000916
IC ICM B01D053-94
ICS B01J023-58
AB WO 200222241 A UPAB: 20020711
NOVELTY - A nitrogen oxide ~~(NOx) trap~~ composition comprises:

(i) NOx storage component(s) (I) comprising alkali metal(s) on support (I); and

(ii) a platinum oxidation catalyst and NOx storage component(s) (II) without alkali metal, on support (II).

The platinum oxidation catalyst and alkali metal are physically segregated to maintain hydrocarbon conversion activity of the platinum catalyst.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(i) Metal or ceramic substrate **coated** with NOx-**trap** composition.

(ii) Shell or can comprising metal or ceramic substrate.

(iii) Exhaust system for lean-burn engine including NOx-trap composition.

(iv) Vehicle comprising lean-burn engine and exhaust system.

(v) Production of NOx-trap composition.

(vi) Use of NOx-trap composition for absorbing NOx from a lean-burn engine exhaust gas during lean-running or stoichiometric-running conditions.

(vii) **Cordierite** honeycomb flow-through monolith including NOx-trap composition which comprises support (I) comprising cesium and manganese, and support (III) comprising rhodium. The support material (I) and support (III) are in a layer over a layer including support (II) supporting platinum and barium.

USE - For trapping NOx from exhaust gas of lean-burn internal combustion engines and vehicles having gasoline engines such as gasoline direct injection engine and diesel engines.

ADVANTAGE - The trap composition uses high- and low-temperature NOx storage components which maintain platinum hydrocarbon conversion activity. The combination of NOx storage component and oxidation catalyst provides higher NOx storage efficiency. The trap composition utilizes less platinum oxidation catalyst and eliminates

the need for unnecessary expensive catalyst in exhaust system to treat hydrocarbon in order to meet present and future emission legislation.
Dwg.0/2

TECH WO 200222241 A1UPTX: 20020711
TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Composition: The NOx storage component (I) is associated with at least one base metal oxidation catalyst chosen from manganese, chromium, cobalt and/or iron. The base metal oxidation catalyst is supported on support (I). The alkali metal is potassium and/or cesium. The NOx storage component (II) comprises alkaline earth metal and/or rare earth element. The alkaline earth metal is barium, calcium, strontium and/or magnesium, and the rare earth element is lanthanum, yttrium, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium and/or lutetium. The trap composition further comprises a catalyst capable of reducing NOx, preferably rhodium. The support (III) comprises alumina, ceria, zirconia and/or titania. The supports are stabilized with lanthanum, yttrium, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium and/or lutetium.
Preferred Substrate: The ceramic substrate is **cordierite**, mullite, alumina, silicon carbide, zirconia or sodium/zirconia/phosphate.
Preferred Exhaust System: The exhaust system has substrate (I) coated with support (I) and substrate (II) coated with support (II). The substrate (I) is positioned either upstream or downstream from substrate (II). The exhaust system further has a control unit for redox composition of exhaust gas, a unit for injecting hydrocarbon to exhaust gas, a unit for adjusting ignition timing of engine cylinder and a unit for adjusting engine air-to-fuel ratio. The control unit is electronic.

KW [1] 102084-0-0-0 CL REM; 102109-0-0-0 CL REM; 102146-0-0-0 CL REM; 140-0-0-0 CL
FS CPI EPI
FA AB; DCN
MC CPI: E11-Q02; E31-H01; H06-C03B; J01-E02D; J04-E01; J04-E03; J04-E04; N02-F; N07-L01C1
EPI: T01-J07D1; X22-A03J; X22-A07
DRN 1881-U; 1901-U; 1902-U
CMC UPB 20020711
M3 *01* C107 C108 C520 C730 C800 C801 C802 C803 C804 C807 M411 M750 M904 M905 N163 N441 Q431 Q436 Q439
DCN: R01901-K; R01901-X
M3 *02* C108 C307 C520 C730 C800 C801 C802 C803 C804 C807 M411 M750 M904 M905 M910 N163 N441 Q431 Q436 Q439
DCN: R01902-K; R01902-X
M3 *03* C107 C108 C307 C520 C730 C800 C801 C802 C803 C804 C807 M411 M750 M904 M905 M910 N163 N441 Q431 Q436 Q439
DCN: R01881-K; R01881-X
M3 *04* A678 C810 M411 M730 M904 M905 Q421 Q508
DCN: R03247-K; R03247-C

L49 ANSWER 3 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 2002-329665 [36] WPIDS
CR 2002-471605 [50]
DNC C2002-095256
TI Production of adsorbent and/or catalyst composition used for reducing/eliminating e.g. sulfur oxides in environment involves contacting support with adsorbent and/or catalyst compounds promoted with halide ions.
DC E36 J01 J04
IN IRETSKAYA, S; KEPNER, B E; MINTZ, E A; MITCHELL, M B
PA (APYR-N) APYRON TECHNOLOGIES INC
CYC 97
PI WO 2002016026 A2 20020228 (200236)* EN 138p B01J020-00
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2001086831 A 20020304 (200247) B01J020-00
ADT WO 2002016026 A2 WO 2001-US26737 20010827; AU 2001086831 A AU 2001-86831 20010827
FDT AU 2001086831 A Based on WO 200216026
PRAI US 2000-715542 20001117; US 2000-227806P 20000825
IC ICM B01J020-00
AB WO 200216026 A UPAB: 20020807
NOVELTY - An adsorbent and/or catalyst composition is produced by mixing a support with an adsorbent and/or catalyst compound, or adsorbent and/or catalyst precursor to produce a mixture. The mixture is then contacted with a halide agent to produce a composition, followed by contacting the composition with an oxoanion and heating the product at 20-1800 deg. C.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(A) method for reducing or eliminating the amount of sulfur oxide from an environment, comprising contacting the environment with an adsorbent and/or catalyst compound;

(B) method for reducing or eliminating the amount of nitrogen oxide from an environment, comprising contacting the environment with an absorbent and/or catalyst compound in the presence of a reducing gas;

(C) adsorbent and/or catalyst and binder system comprising binder that has been cross-linked with itself, an absorbent, catalyst compound, catalyst precursor, and/or halide ion; and

(D) monolith comprising the adsorbent and/or catalyst compound.

USE - For producing adsorbent and/or catalyst composition useful for reducing or eliminating sulfur oxides or nitrogen oxides (e.g. NO, NO2, N2O4, N2O5, N2O) in an environment.

ADVANTAGE - The resulting composition removes sulfur dioxide compounds from an environment at faster rate and lower temperatures

when compared to prior art composition. The presence of halide ion in the halide/adsorbent and/or catalyst composition are responsible for the lower temperatures required for removing the sulfur oxide compounds from the environment. The treatment of the adsorbent and/or catalyst compositions with a halide agent leads to a re-dispersion of the metal or metal oxide on the support surface. The halide treatment of the adsorbent and/or catalyst compositions can change the Lewis acidity of the adsorbent and/or catalyst compositions. The change in dispersion and Lewis acidity can enhance the reactivity of the absorbent and/or catalyst compositions. The reduction of reaction temperature allows less-capital intensive equipment to be used. Lower reaction temperatures lead to lower energy costs and thus lower operating costs. The contacting of the adsorbent and/or catalyst compositions with an oxoanion agent further modifies the Lewis acidity of the absorbent and/or catalyst compositions and, thus, further enhances the activity of the adsorbent and/or catalyst compositions. In case of nitrogen oxide removal, the invention permits a wider range of operating temperatures and reducing gas/nitrogen oxide ratios when compared to prior art compositions. Also, the treatment of the adsorbent and/or catalyst compositions with halide agent and/or polyoxanion agent permits the resultant composition to selectively **poison** undesirable **adsorbent** and/or catalyst sites that lead to undesirable competing reactions.

Dwg.0/11

TECH WO 200216026 A2UPTX: 20020610

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Materials: The support is made of a metal oxide, such as, aluminum oxide (Al_2O_3), gallium oxide (Ga_2O_3), titanium dioxide (TiO_2), cuprous oxide (Cu_2O), cupric oxide (CuO), vanadium oxide (V_2O_5), silicon dioxide (SiO_2), manganese dioxide (MnO_2), manganese oxide (Mn_2O_3), manganese oxide (Mn_3O_4), zinc oxide (ZnO), magnesium oxide (MgO), zirconium dioxide (ZrO_2), thorium dioxide (ThO_2), ferrous oxide (Fe_2O_3), and/or ferric oxide (Fe_3O_4). The support can be a zeolite, ceramic, **cordierite**, and/or metal, preferably ceramic monolith. The adsorbent and/or catalyst compound, or the adsorbent and/or catalyst precursor can be Al_2O_3, Ga_2O_3, TiO_2, CuO, Cu_2O, V_2O_5, SiO_2, MnO_2, Mn_2O_3, Mn_3O_4, ZnO, MgO, ThO_2, Fe_2O_3, Fe_3O_4, tungsten oxide (WO_2, WO_3), rhenium oxide (Re_2O_7, arsenic oxide (As_2O_3, As_2O_5), silver oxide (Ag_2O, AgO), cadmium oxide (CdO), tin dioxide (SnO_2), lead oxide (PbO), iron oxide (FeO), ruthenium oxide (Ru_2O_3, RuO), osmium tetraoxide (OsO_4), antimony oxide (Sb_2O_3), cobalt oxide (CoO, Co_2O_3), nickel oxide (NiO) and/or a zeolite. It can also be a copper compounds, such as, copper nitrate ($Cu(NO_3)_2$, $Cu(NO_3)_2$-XH_2O), copper carbonate ($CuCO_3$), copper sulfate ($CuSO_4$), copper bromide ($CuBr_2$), copper iodide (CuI_2, CuI), copper oxide (CuO, Cu_2O, $Cu(OAc)_2$), copper acetoacetonate, copper gluconate, copper benzonate, and/or copper oxalate.

The halide agent can be a chloride compound, bromide compound, and/or iodide compound. The chloride compound can be hydrogen chloride, lithium chloride, sodium chloride, potassium chloride, rubidium chloride, cesium chloride, beryllium chloride, magnesium

chloride, calcium chloride, strontium chloride, barium chloride, aluminum chloride, ammonium chloride, chloride salt of group I, II or III, and/or chloride salt of a transition metal.
The oxoanion agent is an oxoacid or its salt having a formula of HnXOm.
n = 1-3;
m = 1-4;
X = non-metallic element.
The oxoanion can also be a sulfating agent, such as, SO2 and O2 at 100-800 degrees C, or SO2 and air at 100-800 degrees C. The sulfating agent can be an ammonium sulfate, and/or a group I, II, or III metal sulfate.
The reducing gas can be ammonia, hydrogen, or carbon monoxide.
Preferred Components: The support comprises a binder system produced by:
(1) mixing components comprising (i) a binder that includes a colloidal metal oxide or colloidal metalloid oxide, (ii) an oxide adsorbent and/or catalyst particle, and (iii) an acid; and
(2) removing an amount of water from the mixture to crosslink the binder with itself and/or the oxide adsorbent and/or catalyst particle.
Preferred Process: The process further includes heating step after first mixing step (a). After the contacting step (b), regenerating the halide/adsorbent and/or catalyst/support composition comprising contacting the halide/adsorbent and/or catalyst/support composition with a reducing agent and then an oxidizing agent.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Materials: The halide agent can also be quaternary-alkyl ammonium chloride. The reducing gas can also be a diesel fuel, refinery gas, kerosene, olefin, paraffin, urea, cyanuric acid, ammonium sulfate, organic amine, alcohol, hydrocarbon, partially combusted hydrocarbon, and/or exhaust gas. The hydrocarbon can be methane, ethane, propane, and/or isobutane.

DCN: R01704-K; R01704-S

L49 ANSWER 4 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 2002-129792 [17] WPIDS
CR 1998-542591 [46]
DNN N2002-097884 DNC C2002-039745
TI Formation of porous article for refractory, involves preparing mixture of particles and hollow pliable resilient organic polymer spheres in liquid, forming mixture into shaped article, and drying and firing article for making voids.
DC A81 L02 P53 P64
IN BUTCHER, K R; LIN, C L; PICKRELL, G R
PA (BUTC-I) BUTCHER K R; (LINC-I) LIN C L; (PICK-I) PICKRELL G R
CYC 1
PI US 2001046608 A1 20011129 (200217)* 9p B22F003-11
ADT US 2001046608 A1 CIP of US 1997-825629 19970331, US 2001-801044 20010307

FDT US 2001046608 A1 CIP of US 6210612
PRAI US 2001-801044 20010307; US 1997-825629 19970331
IC ICM B22F003-11
ICS B28B001-00
AB US2001046608 A UPAB: 20020313
NOVELTY - A porous article is made by preparing a mixture of particles and hollow pliable resilient organic polymer spheres in a liquid. The mixture is formed into a shaped article. The article is dried, and fired so that particles are bonded and organic spheres are eliminated, resulting in shaped article having uniformly spaced interconnected voids.

DETAILED DESCRIPTION - Formation of porous article involves preparing a mixture of particles and hollow pliable resilient organic polymer spheres in a liquid. The particles are made from a ceramic or metal material. The spheres have average diameters of 1-1000 mu m. The mixture is formed into a shaped article. The shaped article is dried and fired. The particles are bonded and the hollow pliable organic polymer spheres are eliminated, resulting in voids (10) having average diameters of 1-1000 mu m in the shaped article. The voids form intersections with adjacent void(s) and circular windows (12) are formed at the intersections.

USE - For forming a porous article for use in refractory, kiln furniture, filtration, fuel cell, bone implant, catalyst substrates, catalysts, particular **traps**, filters, diffusion **layers**, electrical conductors, heat exchange components, wicks for heat pipes, wicks for burners, radiant burner surfaces, diffusion layers for introducing fuel and/or water into an air stream.

ADVANTAGE - The invention provides improved porous articles which are stronger, more thermally shock resistant, possesses uniformly dispersed and highly controlled pore sizes, and which can be made more quickly and economically than presently available materials, such as foam materials.

DESCRIPTION OF DRAWING(S) - The figure is a sectional view of a portion of an article.

Voids 10
Windows 12
Dwg.1/2

TECH US 2001046608 A1UPTX: 20020313
TECHNOLOGY FOCUS - CERAMICS AND GLASS - Preferred Method: The particles and the pliable resilient organic spheres are suspended in the liquid. A suspending agent is added for forming suspension. The shaped article is formed by slip casting, pressing, extrusion, or injection molding. The void volume of the shaped article after firing is less than 95%.

Preferred Component: The article has a coating adhered to the article for at least 10 thermal cycles at approximately room temperature to approximately2200degreesF and back to approximately room temperature to approximately2 hours. The coating comprises a ceramic composition.

Preferred Property: The article has theoretical density of 5-30% with breaking strength of 700-4500 psi or theoretical density of

5-20% with breaking strength of up to 12000 psi. It is free of cracks. The windows are in a shape of a circle having an average diameter of approximately11-22 mum.
Preferred Material: The ceramic particles are made of oxides, carbides and nitrides of zirconium, silicon and aluminum, and/or mullite and **cordierite** (preferably zirconia and alumina).

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Component: The liquid comprises water. The metal particles are made of steel and steel alloys, stainless steel, copper, brass, bronze, aluminum (Al), aluminum alloys, titanium, chromium (Cr), nickel, or iron-chromium-aluminum-yttrium (FeCrAlY).

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Component: The pliable resilient organic spheres are made of acrylic and are hollow.

FS CPI GMPI
FA AB; GI
MC CPI: A12-S09; A12-W12G; L02-E
PLE UPA 20020313
[1.1] 018; S9999 S1456-R; L9999 L2391; L9999 L2108 L2095; M9999 M2108 M2095; P0088-R
[1.2] 018; ND01; Q9999 Q6928; B9999 B5209 B5185 B4740; B9999 B5221 B4740; B9999 B4024 B3963 B3930 B3838 B3747

L49 ANSWER 5 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 2001-226596 [23] WPIDS
CR 2001-015638 [02]; 2001-639323 [73]
DNC C2001-067615
TI Catalytic trap for conversion of NOx in exhaust stream from a lean-burn engine comprises sorbent ~~to~~ alternately absorb and desorb NOx and a catalyst for subsequent reduction to nitrogen.
DC E36 H06 J01 J04
IN BRANDT, S; DAHLE, U; DEEBA, M; HOCHMUTH, J K
PA (ENGH) ENGELHARD CORP
CYC 91
PI WO 2001014046 A1 20010301 (200123)* EN 56p B01D053-94
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
AU 2000067953 A 20010319 (200136) B01D053-94
EP 1206312 A1 20020522 (200241) EN B01D053-94
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
KR 2002026597 A 20020410 (200267) B01D053-94
JP 2003507177 W 20030225 (200317) 64p B01J023-58
ADT WO 2001014046 A1 WO 2000-US22968 20000822; AU 2000067953 A AU 2000-67953 20000822; EP 1206312 A1 EP 2000-955812 20000822, WO 2000-US22968 20000822; KR 2002026597 A KR 2002-702345 20020222; JP

2003507177 W WO 2000-US22968 20000822, JP 2001-518175 20000822
FDT AU 2000067953 A Based on WO 200114046; EP 1206312 A1 Based on WO 200114046; JP 2003507177 W Based on WO 200114046
PRAI US 1999-378813 19990823
IC ICM B01D053-94; B01J023-58
ICS B01J035-04; F01N003-08; F01N003-28
AB WO 200114046 A UPAB: 20030312
NOVELTY - Catalytic trap for conversion of NOx in an exhaust stream comprises a trap material, including a catalyst to promote reduction of NOx under rich conditions, and a sorbent for absorbing NOx under lean conditions and desorbing NOx under rich conditions. The sorbent comprises at least one basic oxygenated compound of lithium, sodium and/or potassium.

DETAILED DESCRIPTION - The exhaust stream is alternated between lean and rich conditions. The catalytic trap material is dispersed upon a refractory metal oxide support, and is coated on a refractory carrier (12). All other components of the catalytic trap are inert to basic oxygenated compounds.

An INDEPENDENT CLAIM is included for a method treating an exhaust gas stream to remove NOx by adsorbing during lean operation, the desorbing and reducing to nitrogen during rich operation.

USE - For treating exhaust gas streams, especially those from lean-burn engines, such as gasoline direct injection and partial lean-burn engines, as well as diesel engines.

ADVANTAGE - The trap has enhanced durability after ageing at high temperatures and lean operation conditions.

DESCRIPTION OF DRAWING(S) - The drawing shows a catalytic trap with a metal honeycomb-type refractory carrier.

refractory carrier 12
front face 14
rear face 14'
gas-flow passages 16

Dwg.1/10
TECH WO 200114046 A1UPTX: 20010425
TECHNOLOGY FOCUS - CHEMICAL ENGINEERING - Preferred Device: The trap material and the refractory carrier are free of silica components. The trap comprises two discrete layers of catalytic material, each with a potassium oxygenated compound and a NOx sorbent. Gas flow passages (16) extend longitudinally to connect either end of the carrier. These passages are defined by walls on which the NOx sorbent is coated in two sections. Potassium basic oxygenated compounds are excluded from the rear section, and cesium basic oxygenated compounds are included in the front section. The intermediate point defining the length of these sections is from 20 - 80% of the longitudinal length of the carrier from its front face (14). The sections additionally comprise multiple discrete carrier member sections. A treatment catalyst may be placed between the trap and the exhaust source to promote oxidation of hydrocarbons in the exhaust stream to CO2 and H2O. The exhaust stream immediately prior to contacting the catalytic trap is 250 - 800 degreesC.
Preferred Sorbent: The NOx sorbent comprises sufficient lithium, sodium or potassium (especially potassium) to provide, after

reaction with the basic oxygenated compounds of all silica components in the trap, an excess of basic oxygenated compounds (M2O, where M = Li, Na or K) of at least 0.1 g per in3 (especially 0.1 - 2.5 g per in3, where 0.1 - 1.5 g per in3 is provided by one or more basic oxygenated compounds of potassium).

TECHNOLOGY FOCUS - CERAMICS AND GLASS - Preferred Carrier: The refractory carrier on which the catalytic **trap** is **coated** comprises a potassium-inert material, especially alumina, titania, zirconia, zirconia-alumina, titania-zirconia, titania-alumina, lanthana-alumina, baria-zirconia-alumina, niobia-alumina or silica-leached **cordierite**.

TECHNOLOGY FOCUS - METALLURGY - Preferred Catalyst: The first layer comprises platinum, lanthanum, barium and zirconium, and the second layer comprises a combination of palladium, platinum and rhodium, additionally with barium and zirconium. Respectively, 25 -300 g per ft3, 0.1 - 90 g per ft3 and 0.1 - 50 g per ft3 of palladium, platinum and rhodium is included. Additionally, the catalytic component comprises oxides of nickel, manganese and iron. Preferred Sorbent: The NOx sorbent further comprises other alkali metals, alkaline earth metals and/or rare earth metals, especially magnesium, calcium, barium, strontium and cesium. Preferred Refractory: The carrier may also be a refractory metal, especially stainless steel, Fecralloy (RTM), or titanium.

L49 ANSWER 6 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 1988-066913 [10] WPIDS
DNC C1988-029963
TI Catalyst for cleaning motor car exhaust gas - comprises alternate layers of activated alumina contg. catalytic components and activated alumina.
DC H06 J04 L02
PA (NIMO) NIPPON MOLYBDENUM KK
CYC 1
PI JP 63020028 A 19880127 (198810)* 3p
ADT JP 63020028 A JP 1986-162958 19860712
PRAI JP 1986-162958 19860712
IC B01D053-36; B01J008-04
AB JP 63020028 A UPAB: 19930923
Catalyst has carrier covered with activated alumina layer contg. catalytic component and activated alumina layers, alternatively applied two or more times.

Pref. a monolithic carrier or **cordierite** is used as the substrate. The activated alumina layer contg. catalytic components is obtd. by applying a slurry prepd. by mixing activated alumina carrying platinum, rhodium and/or paladium, and boehmite sol.

USE/ADVANTAGE - This catalyst can be used for cleaning exhaust gas of automobiles, and has improved lead poison resistance. Conventional catalysts are apt to be poisoned with lead, sulphur or

phosphorus contd. in exhaust gas. The activated alumina **layer traps** the poison and protects the activated alumina layer contg. catalytic components and it maintains long catalyst life.
0/0
FS CPI
FA AB
MC CPI: H06-C03; J01-E02D; J04-E04; L02-G; N02-E; N02-F02
DRN 1544-U
CMC UPB 19930924
M3 *01* A545 A546 A678 C810 M411 M730 M903 Q421

L49 ANSWER 7 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 1987-268181 [38] WPIDS
DNN N1987-200742 DNC C1987-113877
TI Oxygen sensor - comprises platinum electrodes on inner and outer surfaces of closed end ceramic tube, stacked with catalyst- and lead cpd. **trap-layers.**
DC E36 H06 J04 S03 X22
PA (NIEJ) JAPAN ELECTRONIC CONTROL SYSTEM; (NPDE) NIPPONDENSO CO LTD
CYC 1
PI JP 62187245 A 19870815 (198738)* 4p
ADT JP 62187245 A JP 1986-28954 19860214
PRAI JP 1986-28954 19860214
IC G01N027-58
AB JP 62187245 A UPAB: 19930922
Platinum electrodes are installed on the inner and outer surfaces of a closed end **ceramic** tube. A **catalyst** layer, a protective layer and a lead **trap layer** are successively stacked on the Pt electrode at the outer surface side. The O2 density in exhaust gas is detected by the emf generated between the electrode inner surface side kept in contact with the air, and the electrode outer surface side kept in contact with the internal combustion engine exhausted gas. The **trap layer** is composed of porous ceramics in the condition such that the pore volume is not less than 0.3 cc/g not more than 5 cc/g, and the thickness is not less than 200 microns and not mroe than 1000 microns.
USE/ADVANTAGE - The covering of the catalyst layer with the Pb component in the exhaust gas is prevented. The life of the oxygen sensor is improved. The lead **trap layer** is the catalyst holding layer obtd. by holding the catalyst onto the porous ceramics material, at the lower layer portion.
5/7
FS CPI EPI
FA AB; DCN
MC CPI: E31-D02; H06-C04; J04-C04
EPI: S03-E03B2; X22-A05B
DRN 1779-U
CMC UPB 19930924
M3 *01* C108 C550 C810 M411 M424 M740 M750 M903 M904 M910 N102 N120 Q417

DCN: R01779-A

L49 ANSWER 8 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 1987-126186 [18] WPIDS
DNN N1987-094282 DNC C1987-052416
TI IC engine exhaust purificn. catalyst - includes supporting layer of ceramic particles whose dia. increase as they approach catalytic metal layer.
AW INTERNAL COMBUST.
DC H06 J04
PA (TOYT) TOYOTA JIDOSHA KK
CYC 1
PI JP 62068548 A 19870328 (198718)* 4p
ADT JP 62068548 A JP 1985-207111 19850919
PRAI JP 1985-207111 19850919
IC B01D053-36; B01J035-02
AB JP 62068548 A UPAB: 19930922
Catalyst (1) consists of a base material(2), a support layer (3) of ceramic particles on (2), and a layer of catalytic metal(4), The ceramic particles in (2) are distributed so that their particle dia increases nearer to the (4)-layer.
Pref. (2) is formed in a honeycomb-shape, monolith, or pellets. (2) is made of **cordierite** mullite, alumina, magnesia or spinel. The ceramic particles in (3) are e.g. alumina particles, zirconium oxide particles, etc. (4) are eg Rh, Pt, Pd, Ir, Ru, Os, Cr, Ni, V, Cu, Co and Mn. (3) may consists of a surface layer of ceramic particles having 50-100 micron dia and an inner layer of the particles having 1-20 micron dia.
USE/ADVANTAGE - (1) is used for purificn of exhaust from internal combustion engine. The distribution of the ceramic particles in (3) prevents (1) from being **poisoned** by Pb and P.
0/5
FS CPI
FA AB
MC CPI: H06-C03; J01-E02D; J04-E04; N02; N03
CMC UPB 19930924
M3 *01* A423 A424 A425 A427 A428 A429 A544 A545 A546 A676 A677 A678 A940 C108 C730 M411 M730 M903 Q421

L49 ANSWER 9 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 1985-172849 [29] WPIDS
DNN N1985-129907 DNC C1985-075406
TI Supported catalysts contg. lanthanum, cobalt and cerium - for catalytic exhaust gas conversion or nitrogen oxide redn..
DC E36 H06 J01 Q51
IN ERDLEN, E; KOCH, C
PA (EVKE-N) FA EVK ENERGIETECH; (INSU-N) INSUMMA GMBH; (KATT-N) KAT-TEC GMBH
CYC 13
PI EP 148358 A 19850717 (198529)* DE 23p
R: AT BE CH FR GB IT LI LU NL SE

JP 60168538 A 19850902 (198541)
DE 3412289 A 19851010 (198542)
DE 3415075 A 19851107 (198546)
DE 3415075 C 19860522 (198621)
US 4613583 A 19860923 (198641)
US 4707341 A 19871117 (198748)
DE 3412289 C 19910117 (199103)
EP 148358 B 19910403 (199114)
R: AT BE CH FR GB IT LI LU NL SE

ADT EP 148358 A EP 1984-113338 19841106; JP 60168538 A JP 1984-237404 19841110; DE 3412289 A DE 1984-3412289 19840403; DE 3415075 A DE 1984-3415075 19840421; DE 3415075 C DE 1984-3415015 19840421; US 4613583 A US 1984-669552 19841108; US 4707341 A US 1986-879642 19860627

PRAI DE 1983-3340682 19831110; DE 1984-3412289 19840403; DE 1984-3415075 19840421

REP 2.Jnl.Ref; A3...8840; DE 2210365; FR 2200049; JP 56026549; JP 56076225; No-SR.Pub; US 4215998

IC B01D053-36; B01J021-04; B01J023-10; B01J035-02; F01N003-10

AB EP 148358 A UPAB: 19930925
New catalysts comprise a porous oxide support with an active metal coating formed by impregnating the support with thermally decomposable La and Co salts and calcining the prod. The metal coating has a La:Co ratio of 1;3:1 (esp. 2:1) and also contains 2-20 wt.% Ce. The support is a **cordierite** monolith with a honeycomb structure wash-coated with a porous Al2O3-MgO layer. The metal coating may also contain 2-20% Fe. The catalyst is prepd. by impregnating the support with an aq. soln. contg. nitrates of Co, La, Ce and opt. Fe, drying at 100 deg.C, and calcining at 200-1000 deg.C in air or a reducing atmos. Also claimed catalytic converter for afterburning of soot in diesel engines.

USE/ADVANTAGE - The catalysts may be used (a) in catalytic converters (afterburners) in the exhaust systems of diesel engines for conversion of unburned hydrocarbons, soot, etc., or (b) for redn. of NOx in flue gases from the combustion of fossil fuels. The catalysts have better stability at high temps. than the supported Co/La/Ni/U catalysts of DE2210365.

ABEQ DE 3412289 C UPAB: 19930925
An arrangement for the catalytic redn. of nitrogen oxides, esp. during the conversion of fossil fuels, includes passing the gas through a reactor contg. one or more catalysts, with an inlet for a reducing agent. The catalysts have a porous, oxidic carrier, and the catalytically active coating consists of La, Co and Ca. The coating comprises 1 pt. Co, 1-3 pts. La and 2-20 wt.% Ce, based on the sum of the Co and La. The coating is applied by impregnation of the carrier.

ADVANTAGE - The arrangement is simple and reliable and the catalysts are not sensitive to **poisoning**.

ABEQ DE 3415075 C UPAB: 19930925
An exhaust gas purifier, esp. for Diesel engines, consists of a metallic housing contg. a ceramic honeycomb insert with a catalytic coating. The coating is made of a soln. of thermally decomposable

lanthanum and cobalt salts, followed by firing, which contains 1 part cobalt to 1-3 parts lanthanum and 2-20 mass % cerium. The inside walls of the housing are also lined by a shell of **catalytically** coated **ceramics**.

ADVANTAGE - This improves the catalytic effect, esp. for the cold start phase.

ABEQ EP 148358 B UPAB: 19930925

Catalyst for conversion of gases and higher hydrocarbons, which has an active metal coating on porous oxidic carrier material, the coating containing lanthanum and cobalt as active metal components, the coating being formed by the impregnation of the carrier material with a solution of thermally easily decomposable lanthanum and cobalt salts and subsequent burning, characterised by the fact that the metal coating contains 1 part of cobalt and 1-3 parts, preferably 2 parts, of lanthanum, and also 2 to 20% by mass of cerium, based on the sum of the aforementioned substances.

ABEQ US 4613583 A UPAB: 19930925

Catalyst for the combustion of hydrocarbons, other gases and soot comprises a coating contg. Co (1 pt.wt.), La (1-3 pts.wt.) Ce (2-20 wt.% based on Co+La) and Fe (2-20 wt.% based on Co+La), on a porous ceramic oxide carrier which is stable at high temp., e.g. a mixt. of alumina and magnesia, esp. **cordierite**.

USE - The prods. catalyse the complete combustion of hydrocarbon fuels, avoiding the formation of excess CO and N oxides, esp. in car combustion engines.

ABEQ US 4707341 A UPAB: 19930925

Appts. for catalytic redn. of nitric oxides in gas, e.g. diesel engine exhaust gas, comprises a reactor which receives the gas and a redn. agent, specifically CO in cracked gas converted in another reactor from oil, natural gas and air.

The reactor contains a porous oxidic carrier for material contg. 1 part cobalt, 1-3 parts lanthanum, and 2-20 wt.% cerium and 2-20 wt.% iron based on the sum of cobalt and lanthanum. Alternatively the redn. agent is NH3, natural gas, or H2.

ADVANTAGE - Highly durable and efficient reactor.

FS CPI GMPI
FA AB
MC CPI: E31-H01; E31-N04; E34-E; E35-V; H05-L01; H06-C01A; H06-C03; J01-E02D; J04-E04; N02-A; N02-B; N03-A
DRN 1423-U; 1532-U; 1669-U; 1713-U; 1784-U; 1907-S; 1918-U
CMC UPB 19930924
M3 *01* C107 C108 C307 C520 C730 C800 C801 C802 C803 C804 C807 M411 M750 M903 M910 N441 Q436 R013
M3 *02* C106 C810 M411 M750 M903 M910 N441 Q436 R032
M3 *03* A426 A427 A657 A700 A758 A940 C108 C550 C730 C801 C802 C803 C804 C805 C807 M411 M730 M903 Q421 R032

L49 ANSWER 10 OF 10 WPIDS (C) 2003 THOMSON DERWENT
AN 1977-29638Y [17] WPIDS
TI Inert-**ceramic** supported **catalysts** contg. alumina - further covered with alumina for lead resistance.
DC H06 Q51

PA (ASAG) ASAHI GLASS CO LTD
CYC 1
PI JP 50095188 A 19750729 (197717)*
PRAI JP 1973-144368 19731227
IC B01D000-00; B01J000-00; C01B000-00; F01N000-00
AB JP 50095188 A UPAB: 19930901
The covered Al2O3 **layers** act as **traps** for Pb in exhaust gases and improve the catalytic activity and service life of the catalysts.

In an example, a **cordierite** honeycomb was dipped in a gamma-Al2O3 slurry, dried, and calcined for 3 hr. at 800 degrees.

Then, the honeycomb was immersed in aq. soln. contg. H2PtCl6 and RhCl3 and reduced by heating in a H stream at 250 degrees for 1.5 hr to obtain a catalyst contg. 2 wt.% gamma-Al2O3 and 0.54 wt.% Pt-Rh (at. ratio 65/35). The catalyst was further coated with Al2O3 by dipping in an Al2O3 slurry and calcining at 500 degrees for 1 hr. The catalyst was calined in air at 800 degrees for 16 hr., kept in a N gas stream contg. PbBr2 at 500 degrees for 1 hr., and again calcined in air at 800 degrees for 16 hr.

An exhaust gas contg. 0.4, CO 1, N 95 vol.%, and propylene 2000 ppm was passed through the catalyst at a space velocity of 2700/hr. The oxidn efficiencies were 100 and 93% for CO and propylene, respectively at the catalyst temp. 300 degrees, compared to 100 and 83% when the catalyst uncoated with Al2O3 was used.

FS CPI GMPI
FA AB
MC CPI: H06-C03A; H06-C04; N02-E; N02-F02

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L51 ANSWER 1 OF 14 HCA COPYRIGHT 2003 ACS
138:43812 Catalytic trap with potassium component and method of using the same. Deeba, Michel; Dahle, Uwe; Brandt, Stefan; Hochmuth, John K. (Engelhard Corporation, USA). U.S. US 6497848 B1 20021224, 24 pp., Cont.-in-part of U.S. Ser. No. 378,813, abandoned. (English). CODEN: USXXAM. APPLICATION: US 2000-643457 20000822. PRIORITY: US 1999-PV127489 19990402; US 1999-323658 19990601; US 1999-378813 19990823.

AB A catalytic trap effective for conversion of NOx in an exhaust gas stream is inert to high-temp. reaction with basic oxygenated compds. of lithium, sodium or potassium. The catalytic trap may be substantially free of silica components and may include a catalytic trap material which contains a refractory metal oxide support, e.g.,

alumina, having dispersed thereon a catalytic component, such as a platinum group metal catalytic component, and a NOx sorbent comprised of one or more of the basic oxygenated compds. The catalytic **trap** material is **coated** onto a suitable carrier member such as one made from alumina, titania, zirconia, zirconia-alumina, zirconia-titania, titania-alumina, lanthana-alumina, baria-zirconia-alumina, niobia-alumina, silica-leached **cordierite**, stainless steel, Fecralloy and titanium. A method of treating a NOx-contg. gas stream involves maintaining the gas stream in alternating periods of lean, rich or stoichiometric conditions and contacting the gas stream with the catalytic trap under conditions in which NOx is adsorbed during periods of lean operation and released and reduced to nitrogen during periods of rich operation.

IT **1302-88-1, Cordierite.**
(silica-leached; catalyst support; catalytic NOx trap for engine exhaust treatment)

RN 1302-88-1 HCA
CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01D053-94
ICS F01N003-28; B01J023-40; B01J023-58; B01J037-02
NCL 422180000; 422171000; 422177000; 502304000; 502339000; 502340000; 502439000
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
IT **1302-88-1, Cordierite.**
(silica-leached; catalyst support; catalytic NOx trap for engine exhaust treatment)

L51 ANSWER 2 OF 14 HCA COPYRIGHT 2003 ACS
138:16103 Ceramic fiber filter having catalysts and promoters supported on coat layer. Taoka, Noriyuki; Ono, Kazushige (Ibiden Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002346386 A2 20021203, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-160328 20010529.
AB The filter comprises catalysts (.gtoreq.1 Li, Na, K, Ba, Mg, Ca, Rh, Pt, Pd, Au, Ag, Cu) and promotors (.gtoreq.1 Ce, La, CeO2, La2O3) supported on a catalyst coat layer (Al2O3, ZrO2, TiO2, SiO2) fixed on a ceramic fiber (SiC, Al2O3, Si3N4, SiO2, **cordierite**, mullite, Zr phosphates). The coat layer is homogeneously dispersed and fixed on the surface of the ceramic fiber. The filter reduces sulfur **poisoning** and effectively removes hydrocarbons, CO, and NOx.
IT **1302-88-1, Cordierite**
(ceramic fiber filter having catalysts and promoters supported on coat layer)
RN 1302-88-1 HCA
CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01J023-58
ICS B01D039-14; B01D039-20; B01D053-94; B01J035-06; B01J037-02; F01N003-02

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST **ceramic** fiber filter **catalyst** promoter support coat layer
IT **Catalyst** supports
Catalysts
Exhaust gases (engine)
(**ceramic** fiber filter having catalysts and promoters supported on coat layer)
IT 409-21-2, Silicon carbide (SiC), uses **1302-88-1**, **Cordierite** 1302-93-8, Mullite 1306-38-3, Cerium dioxide, uses 1312-81-8, Lanthanum oxide 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7439-91-0, Lanthanum, uses 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-09-7, Potassium, uses 7440-16-6, Rhodium, uses 7440-22-4, Silver, uses 7440-23-5, Sodium, uses 7440-39-3, Barium, uses 7440-45-1, Cerium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-70-2, Calcium, uses 7631-86-9, Silica, uses 12033-89-5, Silicon nitride (Si3N4), uses 13463-67-7, Titania, uses 13765-95-2, Zirconium phosphate
(ceramic fiber filter having catalysts and promoters supported on coat layer)

L51 ANSWER 3 OF 14 HCA COPYRIGHT 2003 ACS
137:51334 NOx **adsorbent** with SOx **poisoning** protection. Kupe, Joachim; Fisher, Galen Bruce; Labarge, William J. (Delphi Technologies, Inc., USA). Eur. Pat. Appl. EP 1216746 A2 20020626, 9 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2001-204810 20011210. PRIORITY: US 2000-745849 20001221.
AB A NOx control for an exhaust is provided. The NOx control includes a nickel compd. and a NOx adsorber. The NOx adsorber is suitable for a high oxygen content exhaust, such as an exhaust from a compression-ignition engine or a lean-burn spark-ignition engine having oxygen content greater than about 1 M% based on the total exhaust. Systems for treating an exhaust gas are also provided, including use of a non-thermal plasma reactor and a NOx control, or use of a first non-thermal plasma reactor, a particulate trap, a second non-thermal plasma reactor, and a NOx control. Addnl., methods for forming a NOx control are also described, comprising either mixing, milling, or sintering a nickel compd. integrally with a NOx adsorber, or processing a nickel compd. with a NOx adsorber by mixing, milling, or sintering, wash-coating, imbibing, impregnating, phys. sorbing, chemisorbing, pptg., vapor depositing, or any combination of at least one of the foregoing processing techniques.
IT **1302-88-1**, **Cordierite**
(NOx **adsorbent** with sox **poisoning** protection)
RN 1302-88-1 HCA
CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM B01D053-94
ICS B01J023-755; F01N003-08; B01D053-32; B01J019-08
CC 59-3 (Air Pollution and Industrial Hygiene)
ST exhaust gas nitrogen oxide **adsorbent** sulfur oxide **poisoning** protection
IT Zeolites (synthetic), uses
(Ba; NOx **adsorbent** with sox **poisoning** protection)
IT Catalyst supports
Exhaust gas catalytic converters
Exhaust gases (engine)
(NOx **adsorbent** with sox **poisoning** protection)
IT Air pollution
(control; NOx **adsorbent** with sox **poisoning** protection)
IT Internal combustion engines
(spark-ignition; NOx **adsorbent** with sox **poisoning** protection)
IT 1313-99-1, Nickel oxide, uses 7439-91-0, Lanthanum, uses 7440-22-4, Silver, uses 7440-39-3, Barium, uses 7440-46-2, Cesium, uses 7440-67-7, Zirconium, uses
(NOx **adsorbent** with sox **poisoning** protection)
IT **1302-88-1**, **Cordierite** 1304-28-5, Barium oxide, occurrence 11104-93-1, Nitrogen oxide (NOx), occurrence 12624-32-7, Sulfur oxide
(NOx **adsorbent** with sox **poisoning** protection)

L51 ANSWER 4 OF 14 HCA COPYRIGHT 2003 ACS
136:329693 Multi-zoned catalytic trap and methods of making and using the same. Deeba, Michel; Dahle, Uwe; Brandt, Stefan (Engelhard Corporation, USA). U.S. US 6375910 B1 20020423, 23 pp., Cont.-in-part of U.S. Ser. No. 378,813, abandoned. (English). CODEN: USXXAM. APPLICATION: US 2000-527910 20000317. PRIORITY: US 1999-PV127489 19990402; US 1999-323658 19990601; US 1999-378813 19990823.

AB A multi-zoned catalytic trap for conversion of NOx in an exhaust gas stream which emanates from an engine which is operated with periodic alternations between lean, and stoichiometric or rich, conditions. The catalytic trap comprises a first zone, a second zone and, optionally, one or more intermediate zones disposed between the first zone and the second zone. Each of the zones comprises a catalytic **trap** material **coated** on a refractory carrier member. In the first zone, the catalytic trap material comprises a refractory metal oxide support having dispersed thereon a palladium catalytic component in the amt. of .apprx.30 to .apprx.300 g/ft3, a platinum catalytic component in the amt. of 0 to .apprx.100 g/ft3 and a rhodium catalytic component in the amt. of 0 to .apprx.10 g/ft3; and a NOx sorbent comprising one or more basic oxygenated compds. of one or more alk. earth metals and optionally, one or more basic oxygenated compds. of one or more alkali metals. In the second zone, the catalytic trap material comprises a refractory metal oxide support having dispersed thereon a palladium

catalytic component in the amt. of 0 to .apprx.50 g/ft3, a platinum catalytic component in the amt. of .apprx.10 to .apprx.100 g/ft3 and a rhodium catalytic component in the amt. of .apprx.5 to .apprx.20 g/ft3; and a NOx sorbent comprising one or more basic oxygenated compds. of one or metals selected from the group consisting of alkali metals and alk. earth metals. In the optional zone(s), the catalytic trap material comprises a refractory metal oxide support having dispersed thereon a palladium catalytic component in the amt. of .apprx.25 to .apprx.75 g/ft3, a platinum catalytic component in the amt. of .apprx.5 to .apprx.30 g/ft3 and a rhodium catalytic component in the amt. of 0 to .apprx.10 g/ft3; and a NOx sorbent comprising one or more basic oxygenated compds. of one or metals selected from the group consisting of alkali metals and alk. earth metals.

IT **1302-88-1**, Cordierite
(multi-zoned catalytic trap and methods of making and using the same in exhaust gas treatment)

RN 1302-88-1 HCA
CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01D053-94
ICS B01J023-40; B01J023-58; B01J037-02; F01N003-28
NCL 423239100
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
IT 1302-74-5, Corundum, uses **1302-88-1**, **Cordierite**
1304-28-5, Barium oxide (BaO), uses 1306-38-3, Cerium oxide, uses
1309-37-1, Iron oxide, uses 1312-81-8, Lanthanum oxide
1313-13-9, Manganese oxide, uses 1313-99-1, Nickel oxide, uses
1314-23-4, Zirconium oxide (ZrO2), uses 1344-28-1, Alumina, uses
7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7440-05-3,
Palladium, uses 7440-06-4, Platinum, uses 7440-09-7, Potassium,
uses 7440-16-6, Rhodium, uses 7440-23-5, Sodium, uses
7440-24-6, Strontium, uses 7440-32-6, Titanium, uses 7440-39-3,
Barium, uses 7440-46-2, Cesium, uses 7440-70-2, Calcium, uses
7784-30-7, Aluminum phosphate 11122-73-9 12597-69-2, Steel, uses
13463-67-7, Titania, uses 13765-95-2, Zirconium phosphate
20281-00-9, Cesium oxide (Cs2O) 61981-47-3, Aluminum Zirconium
phosphate
(multi-zoned catalytic trap and methods of making and using the same in exhaust gas treatment)

L51 ANSWER 5 OF 14 HCA COPYRIGHT 2003 ACS
136:298930 **Ceramic catalyst** body. Tanaka, Masakazu; Kondo, Tosiharu; Nakanishi, Tomohiko; Koike, Kazuhiko; Kondo, Takashi; Hase, Tomomi; Ito, Miho (Japan). U.S. Pat. Appl. Publ. US 2002039966 A1 20020404, 18 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-960498 20010924. PRIORITY: JP 2000-298005 20000929; JP 2000-298019 20000929; JP 2001-225615 20010726; JP 2001-225454 20010726.

AB In a **ceramic catalyst** body which comprises a ceramic carrier which has a multitude of pores capable of supporting

a catalyst directly on the surface of a substrate **ceramic** and a **catalyst** supported on the ceramic carrier, a layer contg. an anti-evapn. metal such as Rh is formed on the outer surface of catalyst metal particles such as Pt or Rh. The layer contg. the anti-evapn. metal protects the catalyst metal and prevents evapn. thereof, thereby suppressing the deterioration. A **ceramic catalyst** body is made by having a main catalyst component and a promoter component directly on a ceramic carrier which can directly support the catalyst by substituting a part of the constituent elements of **cordierite**, and a **trap layer** is provided in the upstream thereof for trapping sulfur which is a catalyst **poisoning** component included in the exhaust gas. Since sulfur included in the exhaust gas can be collected by the **trap layer**, the catalyst **poisoning** component can be removed from the gas which enters the catalyst, thus preventing catalyst **poisoning**.

IT **1302-88-1, Cordierite**
(**ceramic catalyst** body)
RN 1302-88-1 HCA
CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01J038-04
NCL 502332000
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST antievaporation metal porous **ceramic catalyst poisoning**
IT Exhaust gases (engine)
(**ceramic catalyst** body)
IT **Ceramics**
(porous; **ceramic catalyst** body)
IT 7440-39-3, Barium, uses
(NOx occluding redn. catalyst and/or promoter; **ceramic catalyst** body)
IT 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses 7440-09-7, Potassium, uses 7440-14-4, Radium, uses 7440-17-7, Rubidium, uses 7440-20-2, Scandium, uses 7440-24-6, Strontium, uses 7440-45-1, Cerium, uses 7440-46-2, Cesium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-65-5, Yttrium, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses 7440-73-5, Francium, uses
(NOx occluding redn. **catalyst**; **ceramic catalyst** body)
IT 12680-36-3, Rhodium oxide
(anti-evapn. metal; **ceramic catalyst** body)
IT 7439-88-5, Iridium, uses 7440-25-7, Tantalum, uses 7440-33-7, Tungsten, uses
(anti-evaporative metal; **ceramic catalyst** body)
IT **1302-88-1, Cordierite** 7440-05-3, Palladium, uses

7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses
(**ceramic catalyst** body)
IT 7440-32-6, Titanium, uses 7440-62-2, Vanadium, uses
(**ceramic catalyst** body)
IT 1344-28-1, .gamma.-Alumina, uses
(.gamma.-; **ceramic catalyst** body)

L51 ANSWER 6 OF 14 HCA COPYRIGHT 2003 ACS
136:283561 Exhaust gas clarification material and its preparation. Arita, Masaaki; Miyazaki, Tatsuo; Tokubuchi, Nobuyuki; Inoue, Masahiro (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002102621 A2 20020409, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-296290 20000928.
AB The title material comprises a metallic or ceramic filter having porous three-dimension monolithic honeycomb structure with washcoat layer, and 16-25 wt.% of catalysts contg. Cu-V compds. and alkali metal sulfates on its surface. The Cu-V compd. has a cryst. structure of CuV2O6, and the mol ratio of the Cu-V compd. to the alkali metal sulfate is preferably (1-5):(1-3). The filter is highly durable and effective for stripping and combusting particulates and prevents **poisoning** by SO2 in diesel exhaust gases.
IT **1302-88-1**, **Cordierite** (Mg2[Al4O3(SiO3)5])
(washcoat layer contg.; combustion catalyst-loaded metallic or ceramic filters for diesel exhaust gas treatment)
RN 1302-88-1 HCA
CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01D039-14
ICS B01D039-20; B01D053-94; B01J023-847; F01N003-02; F01N003-10; F01N003-18; F01N003-24
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST combustion **catalyst ceramic** filter diesel exhaust gas; copper vanadium oxide catalyst filter exhaust gas
IT Filters
(**ceramic**, combustion **catalysts**-loaded on; exhaust gas clarification material and its prepn.)
IT **Ceramics**
(filters, combustion **catalysts**-loaded on; exhaust gas clarification material and its prepn.)
IT **1302-88-1**, **Cordierite** (Mg2[Al4O3(SiO3)5])
(washcoat layer contg.; combustion catalyst-loaded metallic or ceramic filters for diesel exhaust gas treatment)

L51 ANSWER 7 OF 14 HCA COPYRIGHT 2003 ACS
134:197409 Layered catalyst for purifying exhaust gas. Ogura, Yoshitsugu (Toyota Jidosha K. K., Japan). Eur. Pat. Appl. EP 1080783 A2 20010307, 9 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-118746 20000830. PRIORITY: JP 1999-248634 19990902.

AB A catalyst for purifying an exhaust gas, comprising a carrier base material, a supporting layer coated on the surface of the carrier base material, and Pt and NOx storing materials supported with the supporting layer, characterized in that the supporting layer has a two-layer structure of an upper layer and a lower layer and the concn. of Pt supported by the upper layer is higher than that of Pt supported by the lower layer. An object of the present invention is to provide a catalyst for purifying an exhaust gas, capable of preventing SOx from reaching the NOx **trapping layer.**

IT **1302-88-1, Cordierite**
(base layer material; prevention of sulfur poisoning in layered NOx storage catalyst for purifying exhaust gas)

RN 1302-88-1 HCA
CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01J023-58
ICS B01J023-63; B01D053-94; B01J037-02
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
IT **1302-88-1, Cordierite**
(base layer material; prevention of sulfur poisoning in layered NOx storage catalyst for purifying exhaust gas)

L51 ANSWER 8 OF 14 HCA COPYRIGHT 2003 ACS
134:197397 Catalytic trap with potassium component and method of using the same. Deeba, Michel; Dahle, Uwe; Brandt, Stefan; Hochmuth, John K. (Engelhard Corporation, USA). PCT Int. Appl. WO 2001014046 A1 20010301, 56 pp. DESIGNATED STATES: W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US22968 20000822. PRIORITY: US 1999-378813 19990823.

AB A catalytic trap effective for conversion of NOx in an exhaust gas stream is inert to high-temp. reaction with basic oxygenated compds. of lithium, sodium or potassium. The catalytic trap may be substantially free of silica components and may include a catalytic trap material which contains a refractory metal oxide support, e.g., alumina, having dispersed thereon a catalytic component, such as a platinum group metal catalytic component, and an NOx sorbent comprised of one or more of the basic oxygenated compds. The catalytic trap material is **coated** onto a suitable carrier member, such as one made from stainless steel, titanium, alumina, titania, zirconia or silica-leached **cordierite**. A method of treating an NOx-contg. gas stream involves maintaining the gas stream in alternating periods of (1) lean and (2) rich or stoichiometric conditions and contacting the

gas stream with the catalytic trap under conditions in which NOx is adsorbed during periods of lean operation and released and reduced to nitrogen during periods of rich operation.

IT **1302-88-1, Cordierite**
(silica-leached; refractory carrier member; catalytic trap with potassium component effective for conversion of NOx in exhaust gas stream)

RN 1302-88-1 HCA
CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01D053-94
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
IT **1302-88-1, Cordierite**
(silica-leached; refractory carrier member; catalytic trap with potassium component effective for conversion of NOx in exhaust gas stream)

L51 ANSWER 9 OF 14 HCA COPYRIGHT 2003 ACS
134:182698 Catalyst-loaded filters for diesel exhaust gas treatment. Tokubuchi, Nobuyuki; Miyazaki, Tatsuro; Arita, Masaaki; Inoue, Masahiro (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001046875 A2 20010220, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-230262 19990817.

AB The title catalyst comprises a ~~Cu-V compd.~~ and an alkali metal sulfate, and a Cu/V mol ratio of 1:(1.5-3.5). The Cu-V compd. has a cryst. structure of CuV2O6 at .gtoreq.25 mol.%. The mol ratio of the Cu-V compd. to the alkali metal sulfate is preferably (1-5):(1-3). The catalyst is loaded on the surface of a metallic or ceramic filter having porous three-dimension monolithic honeycomb structure with washcoat layer. The washcoat layer has ceramic grains (av. diam. 0.05-20 .mu.m) made from .gtoreq.1 compds. of alumina, silica, titania, silica-alumina, zirconia, aluminum titanate, and **cordierite**, etc. The filter is durable and effective for stripping and combusting particulates and prevents **poisoning** by SO2 in diesel exhaust gases.

IT **1302-88-1, Cordierite**
(washcoat layer contg.; in catalyst-loaded filters for diesel exhaust gas treatment)

RN 1302-88-1 HCA
CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01J027-055
ICS B01D053-94
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST combustion **catalyst ceramic** filter diesel exhaust gas; ~~copper vanadium oxide~~ catalyst filter exhaust gas
IT Filters
(**ceramic**; combustion **catalyst** loaded on, for diesel exhaust gas treatment)
IT **Ceramics**

(filters; combustion **catalyst** loaded on, for diesel exhaust gas treatment)

IT **1302-88-1**, **Cordierite** 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses 37220-25-0, Aluminum titanate 159995-97-8, Aluminum silicon oxide
(washcoat layer contg.; in catalyst-loaded filters for diesel exhaust gas treatment)

L51 ANSWER 10 OF 14 HCA COPYRIGHT 2003 ACS
127:310872 Apparatus for exhaust gas treatment. Sakaguchi, Toshiaki; Ogushi, Akihide (Isuzu Ceramics Kenkyusho K. K., Japan). Jpn. Kokai Tokkyo Koho JP 09256838 A2 19970930 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-93057 19960325.

AB The app. comprises a durable filter made of ceramic nonwoven fiber cloth surrounding with metal screens inside a cylindrical **casing** for **trapping** particulates, means for applying elec. source to electrode terminals connected to metal screens for burning the trapped particulates at a controlled temp., and means for driving the solenoid valve to adjust the flow of combustion air supply through a branch path. The app. is compact and reduces energy consumption.

IC ICM F01N003-02
ICS F01N003-02; B01D039-12

CC 59-3 (Air Pollution and Industrial Hygiene)

IT Reactors
(**catalytic**; with **ceramic** filters, for exhaust gas treatment for particulates removal)

L51 ANSWER 11 OF 14 HCA COPYRIGHT 2003 ACS
126:267850 Nitrogen oxide traps. Hubbard, Carolyn Parks; Hepburn, Jeffrey Scott; Dobson, Douglas A.; Thanasiu, Eva; Gandhi, Haren Sakarlal; Watkins, William Lewis Henderso (Ford Motor Co., UK; Ford-Werke Aktiengesellschaft; Ford France S. A.). Eur. Pat. Appl. EP 764459 A2 19970326, 6 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1996-306342 19960902. PRIORITY: US 1995-531512 19950921.

AB The invention is a nitrogen oxide trap sep. catalyst phases. One of the phases is platinum on a porous support and another is alkali metal or elements and alk. earth elements on another porous support. The phases may be provided as an intimate mixt. or as **layers** in the **trap**. The trap may be used in an internal combustion engine exhaust gas catalyst system. During lean-burn operation of the engine the trap adsorbes nitrogen oxides and releases the nitrogen oxides during decreased oxygen concn. in the exhaust gas.

IT **1302-88-1**, **Cordierite**
(catalytic traps for removing nitrogen oxide from exhaust gases)

RN 1302-88-1 HCA

CN Cordierite (Mg2[Al4O3(SiO3)5]) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM B01D053-94

CC 59-3 (Air Pollution and Industrial Hygiene)
IT **1302-88-1**, **Cordierite** 1306-38-3, Ceria, uses
1344-28-1, Aluminum oxide (Al2O3), uses 7440-06-4, Platinum, uses
7440-16-6, Rhodium, uses 7440-24-6, Strontium, uses
(catalytic traps for removing nitrogen oxide from exhaust gases)

L51 ANSWER 12 OF 14 HCA COPYRIGHT 2003 ACS
121:116444 Reduction of diesel-born emissions by combination of fuel additives and ceramic particulate traps. Part 1: state of development, laboratory tests. Hoffmann, U.; Rieckmann, T.; Schaedlich, K. (Inst. Chem. Verfahrenstech., Tech. Univ. Clausthal, Clausthal-Zellerfeld, Germany). Erdoel, Erdgas, Kohle, 110(4), 163-70 (German) 1994. CODEN: EEKOEY. ISSN: 0179-3187.
AB Diesel particulate emissions are decreased by combinations of fuel additives and uncoated or **catalytically** coated **ceramic** particulate filters. The self-regeneration of particulate filters, which are integrated in the exhaust pipe, via catalytic or noncatalytic combustion is investigated. With the aid of nonisothermal, nonsteady state expts., using filters which are soot loaded, the kinetic parameters and the rate of the combustion of diesel soot are detd. Three metalloorg. fuel additives, 15 different soot filters, and 11 catalytic coatings are examd. An anal. of the polycyclic arom. hydrocarbons (PAH), using HPLC, a simulated distn. of the extractable compds., elementary anal. of the soot and individual characteristics of the burn-off curves make clear the influence of fuel additives on the amt. and the chem. compn. of diesel particulate emissions.
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 57, 67
IT Particles
(removal of, from diesel exhaust, fuel additives and particle **traps** and catalytic **coatings** in relation to)
IT Exhaust gases
(diesel, particulate removal from, fuel additives and particle **traps** and catalytic **coatings** in relation to)

L51 ANSWER 13 OF 14 HCA COPYRIGHT 2003 ACS
106:104750 Nitric oxide manufacture. Handley, Jack Richard (Johnson Matthey PLC, UK). Eur. Pat. Appl. EP 207694 A2 19870107, 17 pp. DESIGNATED STATES: R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1986-304730 19860619. PRIORITY: GB 1985-16333 19850628.
AB In the catalytic prepn. of NO from NH3, using a Pt catalyst optionally contg. Rh and/or Pd, a Pd catchment trap is included downstream from the catalyst to scavenge Pt or Rh lost from the catalyst by volatilization. The **trap** comprises interstitial **layers** of Pd or Pd alloy elements adjacent to .gtoreq.1 layer of interstitial ceramic material. A catalyst pack of 4 layers Pt-40 Rh wire mesh was assembled in tandem with a catchment pack of 3 layers Pd scavenger wire interleaved with 2 layers of ceramic cloth (Al2O3 62, SiO2 24, B2O3 14, fiber diam. 11 .mu., open area 52.6%), and the assembly was used in the prepn. of

NO from air contg. 10 vol.% NH3 at 4 bar and 270.degree. at 96.20% conversion efficiency (measured as end-product HNO3), vs. 92.53% using a trap contg. metal gauze in place of the ceramic layers.

IC ICM C01B021-26
ICS B01J023-96

CC 49-8 (Industrial Inorganic Chemicals)

IT Borides
Carbides
Nitrides
Silicates, uses and miscellaneous
Silicides
(**ceramic** supports, in **catalyst** recovery trap, in nitric oxide prepn. plant)

IT 1304-56-9, Beryllia 1305-78-8, Calcium oxide, uses and miscellaneous 1309-48-4, Magnesia, uses and miscellaneous 1312-81-8, Lanthanum sesquioxide 1313-12-8, Manganosite 1313-96-8, Niobium oxide 1314-20-1, Thoria, uses and miscellaneous 1314-23-4, Zirconia, uses and miscellaneous 1314-36-9, Yttria, uses and miscellaneous 11113-93-2, Uranium oxide 11118-57-3, Chromium oxide 12060-08-1, Scandia 13463-67-7, Titania, uses and miscellaneous 37230-85-6, Hafnium oxide
(**ceramic** supports, in **catalyst** recovery trap, in nitric oxide prepn. plant)

L51 ANSWER 14 OF 14 HCA COPYRIGHT 2003 ACS
84:8707 Catalysts for automotive exhaust gas purification. Oda, Yoshio; Otouma, Hiroshi; Suhara, Manabu; Yoshida, Shohei (Asahi Glass Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 50095188 19750729 Showa, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1973-144368 19731227.

AB Inactive **ceramic**-supported **catalysts** contg. Al2O3 are further covered with Al2O3 to obtain Pb-resistant catalysts. The covered Al2O3 **layers** act as **traps** for Pb in exhaust gases and improve the catalytic activity and service life of the catalysts. Thus, a **cordierite** honeycomb was dipped in a .gamma.-Al2O3 slurry, dried, and calcined for 3 hr at 800.degree.. Then, the honeycomb was immersed in an aq. soln. contg. H2PtCl6 and RhCl3 and reduced by heating in a H stream at 250.degree. for 1.5 hr to obtain a catalyst contg. 2 wt. % .gamma.-Al2O3 and 0.54 wt. % Pt-Rh (at. ratio 65/35). The catalyst was further coated with Al2O3 by dipping in a y-Al2O3 slurry and calcining at 500.degree. for 1 hr. The catalyst was calcined in air at 800.degree. for 16 hr, kept in a N gas stream contg. PbBr2 at 500.degree. for 1 hr, and again calcined in air at 800.degree. for 16 hr. Then, an exhaust gas contg. O 4, CO 1, N 95 vol. %, and propylene 2000 ppm was passed through the catalyst at a space velocity of 2700/hr. The oxidn. efficiencies were 100 and 93 % for CO and propylene, resp. at the catalyst temp. 300.degree., compared to 100 and 83 % when the catalyst uncoated with Al2O3 was used.

IC B01J; B01D; C01B; F01N

CC 59-2 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67